

3-6

Skills Practice

Ratios and Proportions

Use cross products to determine whether each pair of ratios forms a proportion. Write yes or no.

1. $\frac{4}{5} \times \frac{20}{25}$ $100 = 100 \checkmark$

2. $\frac{5}{9}, \frac{7}{11}$ $55 \neq 63$

3. $\frac{6}{7} \times \frac{24}{28}$ $168 = 168 \checkmark$

4. $\frac{8}{9}, \frac{72}{81}$ $648 = 648 \checkmark$

5. $\frac{7}{16}, \frac{42}{90}$ $630 \neq 672$

6. $\frac{13}{19}, \frac{26}{38}$ $494 = 494 \checkmark$

7. $\frac{3}{14}, \frac{21}{98}$ $294 = 294 \checkmark$

8. $\frac{12}{17}, \frac{50}{85}$ $850 \neq 1020$

Solve each proportion. If necessary, round to the nearest hundredth.

9. $\frac{1}{a} = \frac{2}{14}$ $a = 7$

10. $\frac{5}{b} = \frac{3}{9}$ $b = 15$

11. $\frac{9}{g} = \frac{15}{10}$ $g = 6$

12. $\frac{3}{a} = \frac{1}{6}$ $a = 18$

13. $\frac{6}{z} = \frac{3}{5}$ $z = 10$

14. $\frac{5}{e} = \frac{35}{21}$ $e = 3$

15. $\frac{12}{7} = \frac{36}{s}$ $s = 21$

16. $\frac{6}{23} = \frac{y}{69}$ $y = 18$

17. $\frac{42}{56} = \frac{6}{f}$ $f = 8$

18. $\frac{7}{b} = \frac{1}{9}$ $b = 63$

19. $\frac{10}{14} = \frac{30}{m}$ $m = 42$

20. $\frac{11}{15} = \frac{n}{60}$ $n = 44$

21. $\frac{9}{c} = \frac{27}{39}$ $c = 13$

22. $\frac{5}{12} = \frac{20}{g}$ $g = 48$

23. $\frac{4}{21} = \frac{s}{84}$ $s = 16$

24. $\frac{22}{x} = \frac{11}{30}$ $x = 60$

25. **BOATING** Hue's boat used 5 gallons of gasoline in 4 hours. At this rate, how many gallons of gasoline will the boat use in 10 hours?

Find the final price of each item. When a discount and a sales tax are listed, compute the discount price before computing the tax.

1. Compact disc: \$16
Discount: 15%

$$\frac{x}{16} = \frac{15}{100} \rightarrow 100x = 240$$

$$x = 2.4$$

4. Shirt: \$24.00
Sales tax: 4%

2. Two concert tickets: \$28
Student discount: 28%

5. CD player: \$142.00
Sales tax: 5.5%

3. Airline ticket: \$248.00
Superair discount: 33%

6. Celebrity calendar: \$10.95
Sales tax: 7.5%

Write an equation for each problem. Then solve.

2. Find three consecutive even integers whose sum is 132.

3. Find two consecutive integers whose sum is 19.

4. Find two consecutive integers whose sum is 100.

Not possible, SKIP!

5. The lesser of two consecutive even integers is 10 more than one-half the greater. Find the integers.

6. The greater of two consecutive even integers is 6 less than three times the lesser. Find the integers.

7. Find four consecutive integers such that twice the sum of the two greater integers exceeds three times the first by 91.

8. Find a set of four consecutive positive integers such that the greatest integer in the set is twice the least integer in the set.

FIVE STAR.
★★★★★

Discount

$$1. \frac{x}{16} \times \frac{15}{100}$$

$$100x = 240 \\ x = 2.4$$

$$16 - 2.4 = \$13.60$$

$$2. \frac{x}{28} \times \frac{28}{100}$$

$$100x = 784 \\ x = 7.84$$

$$28 - 7.84 = \$20.16$$

$$3. \frac{x}{248} \times \frac{33}{100}$$

$$100x = 8184 \\ x = 81.84$$

$$248 - 81.84 = \$166.16$$

$$4. \frac{x}{24} \times \frac{4}{100}$$

$$100x = 96 \\ x = 0.96$$

$$24 + 0.96 = \$24.96$$

$$5. \frac{x}{142} \times \frac{5.5}{100}$$

$$100x = 781 \\ x = 7.81$$

$$142 + 7.81 = \$149.81$$

$$6. \frac{x}{10.98} \times \frac{7.5}{100}$$

$$100x = 82.125 \\ x = .82125 \approx .82$$

$$10.98 + .82 = \$11.80$$

FIVE STAR.
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FIVE STAR.
★★★★★

Consecutive

$$2. 1^{st} = x$$

$$2^{nd} = x + 2$$

$$3^{rd} = x + 4$$

$$\text{Total} = 132$$

$$x + x + 2 + x + 4 = 132$$

$$3x + 6 = 132$$

$$\begin{matrix} -6 & -6 \end{matrix}$$

$$3x = 126 \rightarrow x = 42$$

$$\boxed{42, 44, 46}$$

$$3. 1^{st} = x$$

$$2^{nd} = x + 1$$

$$\text{Total} = 19$$

$$x + x + 1 = 19$$

$$2x + 1 = 19$$

$$2x = 18 \rightarrow x = 9$$

$$\boxed{9, 10}$$

FIVE STAR.
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4.

SKIP!!

Consecutive

5. $1^{\text{st}} = x$ $x = \frac{1}{2}(x+2) + 10$
 $2^{\text{nd}} = x+2$ $x = \frac{1}{2}x + 1 + 10$
 $\frac{1}{2}x = 11 \rightarrow x = 22$

22, 24

6. $1^{\text{st}} = x$ $x+2 = 3x-6$
 $2^{\text{nd}} = x+2$ $2 = 2x-6$
 $8 = 2x \rightarrow x = 4$

4, 6

7. $1^{\text{st}} = x$ $2(x+2+x+3) = 3x+90$
 $2^{\text{nd}} = x+1$ $2(2x+5)$
 $3^{\text{rd}} = x+2$ $4x+10 = 3x+90$
 $4^{\text{th}} = x+3$ $80 = -x$

80, 81, 82, 83

8. $1^{\text{st}} = x$ $x+3 = 2x$
 $2^{\text{nd}} = x+1$ $-x \quad -x$
 $3^{\text{rd}} = x+2$ $3 = x$
 $4^{\text{th}} = x+3$

3, 4, 5, 6